REMARKS

Claims 1-41 were pending in this application when the present Office Action was mailed (January 20, 2006). In this Office Action, the claims were divided into Group I (claims 1-15, 27-34, 40, and 41 drawn to a method) and Group II (claims 16-26 and 35-39 drawn to a deposition system). The applicants affirm the provisional election made on November 28, 2005, to prosecute Group I (claims 1-15, 27-34, 40, and 41), without traverse. Based on the foregoing election, claims 16-26 and 35-39 have been canceled without prejudice to pursuing these claims in a continuation, divisional, continuation-in-part, or other application. In this paper, claims 1, 27, 33, and 40 have been amended, and claims 42 and 43 have been added. Accordingly, claims 1-15, 27-34, and 40-43 are currently pending.

In the January 20, 2006, Office Action, all of the pending claims were rejected. More specifically, the status of the application is as follows:

(A) Claims 1-15, 27-34, 40, and 41 stand rejected under 35 U.S.C. § 112, first paragraph;

(B) Claims 1, 2, 15, and 27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the background information of the present application ("Background Information"); and

(C) Claims 1, 2, 13, 15, 27, and 33 stand rejected under 35 U.S.C. § 102(b) as being anticipated by PCT Publication No. WO 02/073660 to Porter et al. ("Porter").

As a preliminary matter, the undersigned attorney wishes to thank the Examiner for engaging in a telephone interview on April 17, 2006. During the telephone interview, the Examiner and the applicants' representative discussed the claimed subject matter, the Background Information, and Porter. The Examiner provisionally agreed that the original claims with the foregoing amendments overcome the cited references. The following remarks reflect and expand upon the discussion during the April 17 telephone interview. As such, the applicants request that this paper also constitutes the applicants' Interview Summary.

A. Response to the Section 112 Rejection

Claims 1-15, 27-34, 40, and 41 were rejected under 35 U.S.C. § 112, first paragraph, for allegedly failing to comply with the enablement requirement. Specifically, the Examiner noted that the specification as filed "does not reasonably provide enablement for all temperature sensors on the outside of the deposition chamber." (Office Action, January 20, 2006, p.3.) Applicants respectfully disagree with the Examiner's basis for the rejections because applicants' specification as filed discloses sufficient detail to enable one skilled in the art to operate temperature sensors located outside a deposition chamber for controlling a heat source. Applicants' specification as filed describe the configuration and operation of such temperature sensors at, for example, Figure 3, page 9, paragraph [0023], page 11, paragraph [0029], and page 16, paragraph [0042]. Further, one skilled in the art has sufficient knowledge to position and operate temperature sensors outside a deposition chamber as evident by Porter's disclosure of such an arrangement. As a result, claims 1-15, 27-34, 40, and 41 comply with the enablement requirement under 35 U.S.C. § 112, first paragraph. Accordingly, the Section 112, first paragraph, rejections of claims 1-15, 27-34, 40, and 41 should be withdrawn.

B. Response to the § 102(b) Rejection – Background Information

Claims 1, 2, 15 and 27 were rejected under 35 U.S.C. § 102(b) as being anticipated by the Background Information. Specifically, the Examiner noted that the process described in the Background Information can be "utilized more than once and therefore a control temperature would alternate between the two control temperatures." (Office Action, January 20, 2006, p.4.) During the April 17 telephone interview, the Examiner explained that this comment refers to repeating the temperature ramp-up and deposition process more than once for processing different microfeature workpiece in the deposition chamber. As applicants understand, the Background Information discloses using only the outer temperature to control the heat source during a temperature ramp-up. Once the temperature ramp-up is completed, the inner thermocouples would guide the heat source to maintain the deposition temperature in the chamber (see page 2, paragraph [0005]).

Even though applicants respectfully disagree with the basis of these rejections, applicants have amended independent claims 1 and 27 to further clarify the claimed subject matter.

Pursuant to the agreements reached during the April 17 telephone interview, claim 1 is allowable over the Background Information because the Background Information fails to disclose or suggest each and every feature of claim 1. For example, the Background Information does not teach or suggest "comparing a control temperature to a target temperature, the control temperature alternating between the first temperature and the second temperature during the temperature ramp-up.". Instead, the Background Information discloses using a temperature that is a reading of an outside thermocouple (e.g., the first temperature) to control a heat source during a temperature ramp up in a deposition chamber. According to the Background Information, the control temperature is switched from the outside temperature to an inside temperature not during the temperature ramp-up in the deposition chamber but after the temperature ramp-up is completed.

As a result, the Background Information fails to disclose or suggest each and every feature of claim 1. Accordingly, the Section 102(b) rejection of claim 1 based on the Background Information should be withdrawn. The Section 102(b) rejection of claim 27 should be withdrawn because claim 27 contains subject matter generally analogous to that of claim 1, and also because claim 27 contains additional features. The Section 102(b) rejections of claims 2 and 15 should also be withdrawn because these claims depend from claim 1, and also because these claims contain additional features.

C Response to the Section 102(b) Rejection – Porter

Claims 1, 2, 13, 15, 27, and 33 were rejected under 35 U.S.C. § 102(b) as being anticipated by Porter. Even though applicants respectfully disagree with the basis of these rejections, applicants have amended independent claims 1, 27, and 33 to further clarify the claimed subject matter.

Claim 1 is directed to a method for controlling temperature in a deposition process using a deposition chamber and a heat source outside the deposition chamber. The method includes positioning a microfeature workpiece in the deposition chamber and monitoring a first temperature that is a reading of a first temperature sensor positioned outside the deposition chamber and a second temperature that is a reading of a second temperature sensor positioned in the deposition chamber. The method further includes increasing an internal temperature in the

deposition chamber from an initial temperature to a deposition temperature during a temperature ramp-up in accordance with a ramp profile by (a) comparing a control temperature to a target temperature, and (b) selectively delivering heat from the heat source to the deposition chamber in response to a result of the comparison. During the temperature ramp-up, the control temperature alternates between the first temperature and the second temperature, and the target temperature is determined in accordance with the ramp profile.

Porter discloses a method for minimizing stress to a deposition chamber by limiting temperature ramp rates in the deposition chamber (abstract). In particular, Porter discloses controlling the ramp rates using two sets of thermocouples – spike and profile thermocouples (Figure 1, p. 11, ll. 16-19). The spike thermocouple is closer to heater element windings, and the profile thermocouple is closer to wafers (p. 11, ll. 19-21). Porter further discloses mathematically combining the measured temperatures from both the spike and profile thermocouples to generate a control temperature (p. 20, ll. 23-26). The control temperature is preferably a weighted average of the measured temperatures from the spike and profile thermocouples (p. 11, ll. 26-28).

Pursuant to the agreements reached during the April 17 telephone interview, claim 1 is allowable over Porter because Porter fails to teach or suggest each and every feature of claim 1. For example, assuming, for the sake of argument, that Porter's spike and profile thermocouples correspond, at least in part, to the first and second temperature sensors of claim 1, Porter does not disclose or suggest "comparing a control temperature to a target temperature, the control temperature alternating between the first temperature and the second temperature during the temperature ramp up," of claim 1. Instead, Porter's control temperature is a mathematical combination of the measured temperatures from the spike and profile thermocouples. As a result, Porter's control temperature has a value between the two measured temperatures and may fluctuate continuously based on current readings of the spike and profile thermocouples. In contrast, the control temperature in accordance with claim 1 has step changes when the control temperature alternates between the first and second temperatures as illustrated in Figure 5.

As a result, Porter fails to disclose or suggest each and every feature of claim 1. Accordingly, the Section 102(b) rejection of claim 1 should be withdrawn. The Section 102(b)

rejection of claim 27 should also be withdrawn because claim 27 contains subject matter generally analogous to that of claim 1 and also because claim 27 contains additional features. The Section 102(b) rejections of claims 2, 13, 15 and 33 should also be withdrawn because these claims depend from claims 1 or 27, and also because these claims contain additional features.

D. Conclusion

In view of the foregoing, the pending claims comply with 35 U.S.C. § 112 and patentably defined over the applied references. The applicants respectfully request reconsideration of the application and a mailing of a Notice of Allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned representative at (206) 359-6038.

Respectfully submitted,

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